

Reinstatement of the genus *Babingtonia* Lindl. (Myrtaceae, Leptospermoideae)

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Summary

Bean, A.R. (1997). Reinstatement of the genus *Babingtonia* Lindl. (Myrtaceae, Leptospermoideae. *Austrobaileya* 4(4): 627–645. The genus *Babingtonia* is reinstated for a large group of species previously included in *Baeckea* L. sens. lat. Sixteen species are recorded for Malesia, New Caledonia and eastern Australia. Five new species: *Babingtonia tozerensis* A.R.Bean, *B. granitica* A.R.Bean, *B. odontocalyx* A.R.Bean, *B. silvestris* A.R.Bean and *B. prominens* A.R.Bean are described and illustrated. Nine new combinations are made; *Babingtonia taxifolia* (Merr.) A.R.Bean, *B. procera* (J.W.Dawson) A.R.Bean, *B. leratii* (Schltr.) A.R.Bean, *B. pinifolia* (Labill.) A.R.Bean, *B. crenulata* (F.Muell.) A.R.Bean, *B. behrii* (Schltdl.) A.R.Bean, *B. cunninghamii* (Schauer) A.R.Bean, *B. jucunda* (S.T.Blake) A.R.Bean and *B. squarrulosa* (Domin) A.R.Bean. An illustration and English description of *Babingtonia squarrulosa* are provided for the first time. Distribution maps are provided for all eastern Australian species. Keys are included for the genera previously included in *Baeckea*, and for the species of *Babingtonia* occurring in eastern Australia and Malesia.

Key words: taxonomy, Myrtaceae; Australia, New Caledonia, Malesia, *Babingtonia*, *Baeckea*, *Babingtonia tozerensis*, *Babingtonia granitica*, *Babingtonia odontocalyx*, *Babingtonia silvestris*, *Babingtonia prominens*.

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Introduction

A broad circumscription for the genus *Baeckea* L. was established by Bentham (1867), and this was unchallenged until recent years. It is now recognised (Johnson & Briggs 1985; Trudgen 1987; Bean 1995) that *Baeckea* sens. lat. is a polyphyletic group. Based on their ovule and anther characteristics, taxa such as *Ochrosperma* and *Babingtonia*, historically included within *Baeckea*, are more closely related to *Hypocalymma* (Endl.) Endl. and *Astartea* DC. (respectively) than they are to each other. The option of reducing *Hypocalymma*, *Astartea* and other genera to synonymy under *Baeckea* is an untenable solution, as similar treatment of taxa elsewhere in the family would result in the reduction of many well-known and long established genera. Hence the alternative is chosen i.e. the raising of groups within *Baeckea* sens. lat. to generic status. In eastern Australia, New Caledonia and Malesia, five genera are recognised (Bean 1995).

The largest is *Babingtonia* Lindl., established in 1842 and based on *Baeckea camphorosmae* Endl. Lindley regarded *Babingtonia camphorosmae* as being distinct from *Baeckea* because of its stamens forming groups opposite the sepals, and because of the dehiscence of the anthers by terminal pores. Schauer (1843) accepted Lindley's genus and described several other related genera, including *Harmogia*, *Tetrapora* and *Oxymyrrhine*, all of which were apparently distinguished from *Babingtonia* by their mode of anther dehiscence. *Oxymyrrhine* and *Tetrapora* were not widely accepted by later botanists. Their types do not appear to differ in any significant way from that of *Babingtonia*. By contrast, *Harmogia* was taken up by several botanists, notably Mueller (1864), who transferred several eastern Australian *Baeckea* species to *Harmogia*.

The several species originally included by Schauer under *Harmogia* do differ from *Babingtonia camphorosmae* (the type species of *Babingtonia* Lindl.) in their mode of anther dehiscence, being by pores in *B. camphorosmae* or by short slits in the original *Harmogia* spp.,

which are all eastern Australian species. Bentham (1865) reduced both *Babingtonia* and *Harmogia* to sectional status under *Baeckea*, applying sect. *Babingtonia* to Western Australian species and sect. *Harmogia* to the eastern Australian species, thus maintaining the perception that the western and eastern Australian taxa were fundamentally different.

However, both eastern and western species exhibit considerable variation for this character; some eastern species have anthers dehiscing by pores and others by short divergent slits, as do western species. Furthermore, several other characters e.g. stamen arrangement, the often compound sepals and pedunculate inflorescences, are shared by western and eastern species. Therefore the maintenance of *Harmogia* Schauer as a separate genus is not supported here.

A key to the five genera comprising *Baeckea* sens. lat. in eastern Australia, New Caledonia and Malesia is presented below. The genus *Babingtonia* Lindl. is reinstated and revised for species occurring in eastern Australia and Malesia, except for the species complex including *Babingtonia virgata* which will be treated in a future paper.

For the purposes of this paper, eastern Australia is defined as the area comprising the States of Queensland, New South Wales, Victoria and Tasmania, as well as the Australian Capital Territory.

Materials and methods

This paper is based on a morphological study of herbarium material from A, BM, BRI, GH, HAL, K, MEL, NE, NSW, P, PR and UC. In addition, microfiche of type specimens in LINN have been seen. Most species have been examined in the field to determine ecological preferences and to collect spirit material.

Measurements of vegetative parts are based on herbarium material, and floral and fruiting measurements are based on spirit material or reconstituted dried specimens.

The species are arranged in perceived systematic order, which is based on the authors' informal weighting of characters according to

their importance in delimiting taxa above the level of species.

Taxonomic and ecological characteristics

Babingtonia is characterised (in eastern Australia, New Caledonia and Malesia) within Subtribe Baeckeeinae Benth. by its pedunculate, 1–7-flowered inflorescences; 3–15 stamens that are in (commonly loose) groups of 1–3 opposite the sepals, and not opposite the petals; usually geniculate filaments; adnate anthers dehiscing by pores or short divergent slits; sepals commonly compound; 3-locular ovary; 4–18 ovules per loculus; and angular, discoid to cuboid seeds.

Compound sepals are a feature of many species of *Babingtonia*. They consist of an inner lobe which is thin-textured and obtuse, and an outer or dorsal lobe which is thick and commonly acute or acuminate (**Fig. 2J**). These outer lobes may be short and inconspicuous, as in *B. jucunda*, or long and prominent, as in *B. odontocalyx*. Compound sepals are rare in Myrtaceae but also occur in *Lophostemon confertus* (R.Br.) Peter G. Wilson & J.T. Waterh.

The taxonomic arrangement used here is based primarily on ovule arrangement. Species 1–10 are characterised by a radial arrangement of ovules around the placenta. In species 11–16, the ovules are arranged in two parallel rows on the distal side of the placenta.

Within these groups, species affinities are based on ovule number, peduncle and pedicel length, and leaf morphology.

Babingtonia is the largest and most widespread of the genera comprising *Baeckea* sens. lat. There are numerous *Babingtonia* species in Western Australia and two in South Australia. In the area under consideration (eastern Australia, Malesia, New Caledonia), *Babingtonia* is best represented in New South Wales and Queensland. It is represented by two species in Victoria and is absent from Tasmania.

There are four species in New Caledonia (Dawson 1992) and one in Borneo (Merrill 1928).

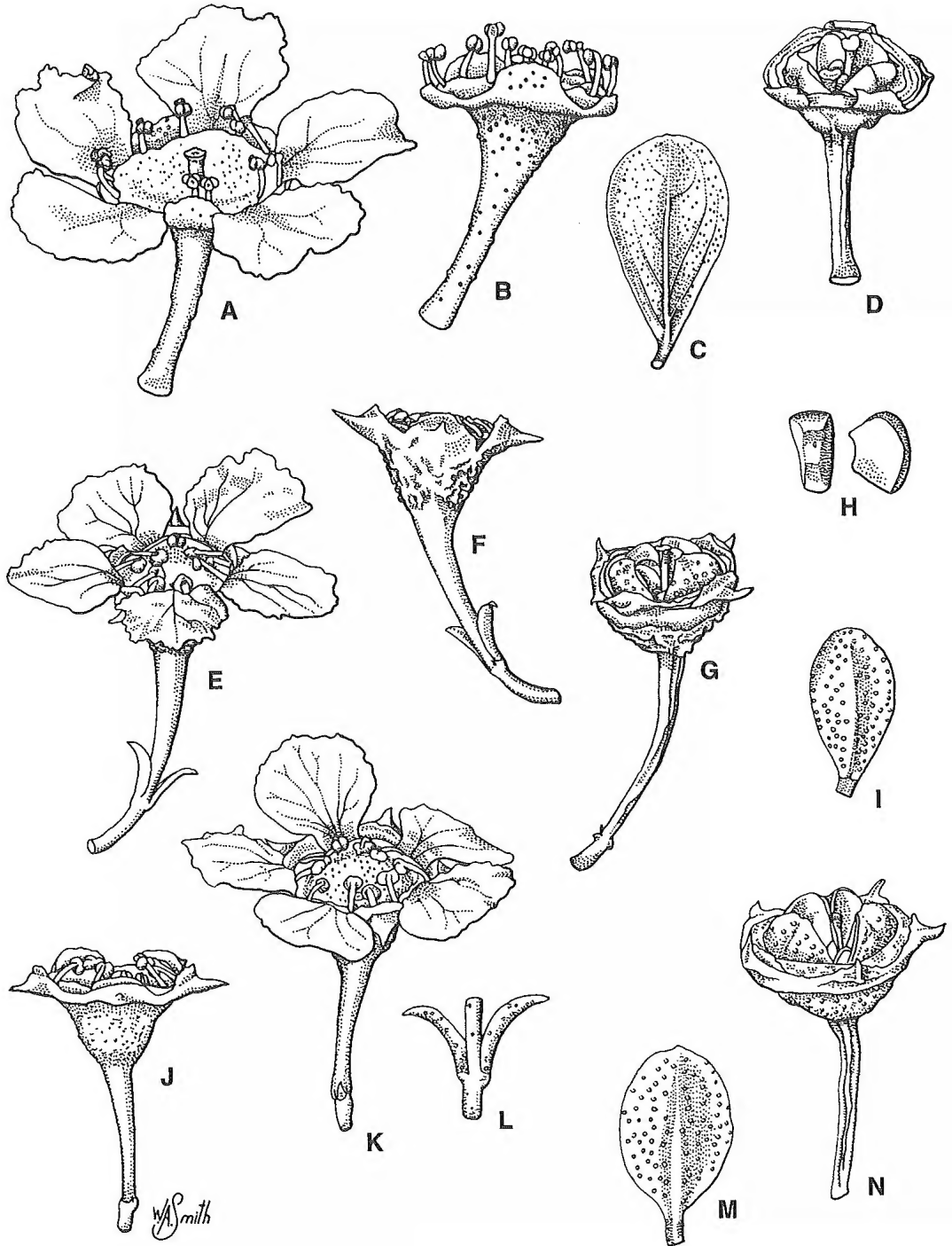


Fig. 1. A–D: *Babingtonia tozerensis*. A. flower $\times 6$. B. hypanthium and lobes $\times 6$. C. leaf $\times 3$. D. fruit $\times 6$. E–I. *Babingtonia prominens*. E. flower $\times 6$. F. hypanthium and lobes $\times 6$. G. fruit $\times 6$. H. seed $\times 12$. I. leaf $\times 6$. J–N: *Babingtonia silvestris*. J. hypanthium and lobes $\times 6$. K. flower $\times 6$. L. bracteoles $\times 6$. M. leaf $\times 6$. N. fruit $\times 6$. A–C, Bean 7196; D, Bean 7634; E–I, Bean 7672; J–N, Bean 8221.

The habitat favoured by *Babingtonia* species is hillsides and mountainsides, on shallow soils derived from serpentinite, granite, sandstone or trachyte, although some taxa allied to *B. virgata* inhabit creek banks and

valleys with deep soil. No species occur in swampy sites. Most species have small xeromorphic leaves, though some members of the *B. virgata* group have larger and thinner leaves than most *Babingtonia* species.

Taxonomy

Key to the genera previously included within *Baeckea* L. sens. lat. in eastern Australia, New Caledonia and Malesia

1. Ovary and fruit 3-locular 2
Ovary and fruit 2-locular **Baeckea**
2. Anthers versatile, dehiscent by long parallel slits 3
Anthers adnate, dehiscent by pores or short divergent slits **Babingtonia**
3. Ovules and seeds D-shaped, angular **Baeckea**
Ovules and seeds reniform, not angular 4
4. Some stamens opposite centre of petals **Euryomyrtus** Schauer
No stamens opposite centre of petals 5
5. Ovules 2 per loculus, stamens 5–8 **Ochrosperma** Trudgen
Ovules 8–13 per loculus, stamens 14–18 **Triplarina** Raf.

Babingtonia Lindl., Bot. Reg. 28: t.10 (1842); *Baeckea* sect. *Babingtonia* (Lindl.) Benth. & Hook.f., Gen. Pl. 1: 702 (1865). **Type:** *Babingtonia camphorosmae* (Endl.) Lindl.

Harmogia Schauer, *Linnaea* 17: 238 (1843); *Baeckea* sect. *Harmogia* (Schauer) Benth. & Hook.f., Gen. Pl. 1: 701 (1865). **Type:** *Harmogia densifolia* (Sm.) Schauer (lecto: here designated).

Oxymyrrhine Schauer, *Linnaea* 17: 240 (1843); *Baeckea* sect. *Oxymyrrhine* (Schauer) Benth. & Hook.f., Gen. Pl. 1: 701 (1865). **Type:** *Oxymyrrhine gracilis* Schauer.

Tetrapora Schauer, *Linnaea* 17: 238 (1843). **Type:** *Tetrapora preissiana* Schauer.

Shrubs, prostrate or to 5 m high, all parts glabrous. Bark grey, scaly or fibrous, persistent. Stem flanges prominent, flat or convex, winged or not winged, entire or lacinate, sometimes

with tuberculate glands. Leaves opposite, exstipulate; linear, oblanceolate or elliptic, glabrous, concavo-convex, plano-convex or flat; oil glands obscure on adaxial surface, conspicuous (or rarely obscure) on abaxial surface, scattered; margins entire, minutely denticulate, crenulate or rarely irregularly lobed, sometimes recurved; venation not visible or midrib faintly visible, apex acute or obtuse; base cuneate or obtuse. Inflorescences axillary, anthotelic, with monads, or 3–7 flowered umbellasters. Flowers actinomorphic, bisexual, 5-merous. Peduncles terete or flattened; bracts absent; pedicels terete, short, sometimes absent; bracteoles 2, opposite, conduplicate, ovate to linear or triangular, caducous or somewhat persistent. Sepals usually compound; inner lobes obtuse, thin, entire or fimbriate; outer lobes obtuse, acute or acuminate, thick, entire, absent in some species. Petals caducous, white, orbicular or almost so, 1–6 mm wide, margins entire or fimbriate. Stamens 3–15(25), free, in a single whorl, shorter than the petals, usually one opposite each sepal and the rest

scattered but not opposite a petal; antesepalous stamens often shorter than other stamens; filaments terete, geniculate, with the connective gland fused to the top of the filament at the bend; anthers adnate, dorsifixed, bilocular, with cells fused or free, dehiscent by pores or short divergent slits. Ovary inferior, 3-locular or rarely 2-locular; ovules (2)4–18 per loculus, arranged radially around placenta or in two longitudinal rows; placenta furrowed, peltate. Style simple,

terete, emerging through, but free from the floral disc; stigma capitate. Fruits capsular, hemispherical to bowl-shaped, woody, crowned by persistent sepals, dehiscent loculicidally. Seeds discoid or cuboid, with rounded outer surface and flat sides, angular, surface finely reticulate or smooth, not arillate. Embryo with small cotyledons on a slender neck attached to a large radicle.



Fig. 2. A–D: *Babingtonia squarrulosa*. A. flower $\times 8$. B. hypanthium and lobes $\times 8$. C. fruit $\times 8$. D. leaf $\times 8$. E–G: *Babingtonia granitica*. E. flower $\times 8$. F. hypanthium and lobes $\times 8$. G. leaf $\times 8$. H–L: *Babingtonia odontocalyx*. H. flower $\times 8$. I. hypanthium and lobes $\times 8$. J. compound sepal $\times 16$. K. fruit $\times 8$. L. leaf $\times 8$. A, B, D, Bean 7490 & Forster; C, Forster 16489 & Figg; E–G, Bean 7263; H–L, Bean 7261.

Key to the eastern Australian and Malesian species of *Babingtonia*
(Note: A key to the New Caledonian species is given by Dawson (1992)).

1. Leaf margins crenulate or conspicuously irregular 2
 Leaf margins entire or minutely denticulate 3
2. Leaves 4.2–6.1 mm long, crenulate. Mt Buffalo, Victoria **7. *B. crenulata***
 Leaves 1.2–2.4 mm long, conspicuously irregular. Central-northern NSW
 **10. *B. cunninghamii***
3. Leaves more than 1.5 mm wide 4
 Leaves less than 1.5 mm wide 7
4. Inflorescences 3- or 7-flowered 5
 Inflorescences 1-flowered 6
5. Stem flanges warty; leaves with length:breadth ratio of 1.8–2.5:1, obtuse .. **6. *B. tozerensis***
 Stem flanges not warty; leaves with length:breadth ratio of 3–9:1, acute or
 obtuse **5. *B. virgata* sens. lat.**
6. Petals 2.6–3.0 mm wide; hypanthium muricate; leaf length:breadth ratio
 1.7–2.2:1 **12. *B. prominens***
 Petals 1.5–2.3 mm wide; hypanthium smooth; leaf length:breadth ratio
 1.2–1.7:1 **13. *B. silvestris***
7. Outer sepals acute or acuminate, 0.8–1.8 mm long 8
 Outer sepals obtuse, up to 0.3 mm long, or absent 11
8. Leaves broadly ovate, 0.9–1.5 mm long; hypanthium smooth **14. *B. squarrulosa***
 Leaves linear to lanceolate, 2.5–6.5 mm long; hypanthium smooth or muricate 9
9. Pedicels absent; hypanthium smooth **1. *B. taxifolia***
 Pedicels 0.5–2.0 mm long; hypanthium muricate 10
10. Stamens 5–9; ovules 8–9/loculus; leaves 0.7–1.4 mm wide **15. *B. granitica***
 Stamens 11–13; ovules 12–14/loculus; leaves 0.5–0.8 mm wide **16. *B. odontocalyx***
11. Leaf apex uncinata **9. *B. behrii***
 Leaf apex acute or obtuse 12
12. Inflorescence 3- or 7-flowered **5. *B. virgata* sens. lat.**
 Inflorescence 1-flowered 13
13. Leaves obovate; pedicels 2.0–4.2 mm long; outer sepals present; hypanthium
 5-ribbed **11. *B. jucunda***
 Leaves linear; pedicels 0.4–1.0 mm long; outer sepals
 absent; hypanthium smooth **8. *B. densifolia***

1. *Babingtonia taxifolia* (Merr.) A.R.Bean
comb. nov.

Baeckea taxifolia Merr., Sarawak Mus. J. 3:
 534, 537 (1928). **Type:** Borneo. Mt

Murud, October 1922, *E. Mjoberg* 111
 (lecto (here chosen): UC; isolecto: BM,
 K).

Shrub, prostrate or up to 1.3 m high. Bark on branchlets persistent, brown with papery layers. Stem flanges grey, convex, not winged, not warty, entire. Leaves widely spreading, linear, 3.0–6.5 mm long, 0.6–0.8 mm wide, straight or curved, plano-convex, obtuse, not keeled, entire; oil glands very small, visible only with microscope; veins not visible, petiole 1.2–1.5 mm long. Inflorescence axillary, 1-flowered; peduncles thick, c. 0.6 mm long; pedicels absent, bracteoles persistent, linear, c. 3.0 × 0.5 mm, obtuse. Hypanthium obconical, more or less smooth, 2.0–2.5 mm long, fused to the ovary except at top. Sepals compound; inner lobes obtuse, thin, c. 0.4 × 1.0 mm, margins entire; outer lobes acute, thick, c. 0.9 mm long, erect. Corolla white, 5–6 mm across; petals orbicular, 1.5–2.2 × 1.5–2.0 mm, entire or fimbriate; oil glands present. Stamens 15, 3 opposite each sepal, of slightly varying length; filaments terete, 0.7–1.1 mm long, geniculate, with a black or brown connective gland fused to upper part of filament at bend; anthers adnate, c. 0.2 mm long, dehiscing by elliptic pores or short slits; anther loculi free. Style c. 0.8 mm long, set into a pit; stigma slightly broader than style. Ovary 3-locular; floral disc flat; ovules c. 6 per loculus, radially arranged around a small placenta near apex of chamber. Fruit hemispherical-truncate, 1.5–1.8 × 3.2–3.5 mm; valves triangular, woody, at about rim level. Seeds cuboid, c. 0.7 mm long, with flat sides and rounded backs, smooth to shallowly reticulate, pale brown; hilum terminal.

Specimens examined: Borneo. Mt Murud, Kalabit Highlands, Sarawak, Apr 1970, *Nooteboom* 2016 & *Chai* (L); Gunung Klam, in 1893, *Hallier* 2308 (L); Mt Murud (sic), Lawas, Sarawak, Oct 1967, *Paie* S26456 (L); Mt Murud, Oct 1922, *Mjoberg* 84 (A, UC).

Distribution and habitat: *Babingtonia taxifolia* is endemic on the mountains of northern Sarawak on the island of Borneo, between altitudes of 2100 and 2400 metres. It grows in open shrubland communities on rocky slopes with little soil.

Phenology: Flowers and fruits have been recorded for the months of April and October.

Affinities: While clearly belonging to *Babingtonia*, *B. taxifolia* is a very distinctive species with no close relatives. The spreading

leaves with long petioles and lacking obvious oil glands are unusual, as are the regularly arranged stamens, in groups of three opposite each sepal.

Typification: Two specimens collected by Mjoberg (Numbers 86 and 111) were seen by Merrill. Mjoberg 111 is chosen as the lectotype as it is a more complete specimen and matches the description given in the protologue.

2. *Babingtonia procera* (J.W.Dawson) A.R.Bean comb. nov.

Baeckea procera J.W.Dawson, Fl. Nouv. Caledon. et Dep. 18: 22 (1992). **Type:** New Caledonia. Paagoumene, 26 October 1977, *MacKee* 34140 (holo: P).

See Dawson (1992) for a description, illustration and notes on distribution.

3. *Babingtonia leratii* (Schltr.) A.R.Bean comb. nov.

Baeckea leratii Schltr., Bot. Jahrb. Syst. 40, Beibl. 92: 32 (1908). **Type:** New Caledonia. Mt Mou, s. dat., *Le Rat* 563 (neo: P, fide Dawson (1992)).

Baeckea ericoides Brongn. & Gris, Bull. Soc. Bot. France 11: 184 (1864), nom. illeg., non Schlechtendal (1846). **Type:** New Caledonia. Mt Dore, s. dat., *Vieillard* 440 (P n.v., photo BRI).

See Dawson (1992) for a description, illustration and notes on distribution.

4. *Babingtonia pinifolia* (Labill.) A.R.Bean comb. nov.

Leptospermum pinifolium Labill., Sert. Austro-Caledon. 63, t. 62 (1825); *Baeckea pinifolia* (Labill.) DC., Prodr. 3: 229 (1828). **Type:** New Caledonia. Balade, in 1793, *Labillardiere* s.n. (holo: FI n.v.; iso: BM, photo BRI; K n.v., fide Dawson (1992)).

See Dawson (1992) for a description, illustration and notes on distribution.

5. *Babingtonia virgata* (J.R.Forst. & G.Forst.)
F.Muell., *Fragm.* 4: 74 (1864).

Leptospermum virgatum J.R.Forst. & G.Forst., *Char. Gen. Pl.* 48 (1776); *Melaleuca virgata* (J.R.Forst. & G.Forst.) L.f., *Supp. Pl.* 343 (1781); *Baeckea virgata* (J.R.Forst. & G.Forst.) Andrews, *Bot. Repos.* 9: t.598 (1810); *Harmogia virgata* (J.R.Forst. & G.Forst.) Schauer, *Linnaea* 17: 238 (1843). **Type:** New Caledonia, in 1774, *J.R. & G. Forster* s.n. (holo: K n.v., photo BRI).

Note: A revision of the *Babingtonia virgata* species complex is in preparation.

6. *Babingtonia tozerensis* A.R.Bean sp. nov.,

B. crenulatae affinis a qua foliis longioribus marginibus integris, pedicellis brevioribus, et lobis calycis simplicibus differt. **Typus:** Queensland. COOK DISTRICT: Tozer Range, northern end, 29 June 1948, *L.J. Brass* 19348 (holo: BRI; iso: A, CANB).

Baeckea sp. (Tozer Range *L.J. Brass* 19348) in Henderson (1994).

Shrub to 2 m high. Bark grey, scaly, persistent. Stem flanges brown, flat, not winged, warty, margins entire. Leaves elliptic to obovate, 7.2–11.5 mm long, 3.0–6.5 mm wide, straight, flat, obtuse, not keeled, entire; oil glands visible on both surfaces; midrib visible; petiole 1.5–1.8 mm long, yellow. Inflorescence axillary, 3- or 7- flowered; peduncle 5–11.5 mm long; pedicels 3.5–5 mm long; bracteoles numerous at top of peduncle, caducous, triangular, 0.5–0.9 × 0.2–0.3 mm, acute. Hypanthium obconical, smooth, c. 2 mm long, fused to the ovary throughout. Sepals simple, obtuse, thin, c. 0.8 × 1.8 mm, margins entire. Corolla white, up to 9.5 mm across; petals orbicular, 3.0–3.5 mm across, entire or fimbriate; oil glands present. Stamens 10–12(-14), irregularly arranged, very rarely opposite a petal, stamens opposite sepals shorter than remainder; filaments terete, c. 0.7 mm long, geniculate, with prominent brown connective gland fused to upper part of filament at the bend; anthers adnate, c. 0.3 mm long, dehiscing by elliptical pores, anther loculi partly fused. Style 0.3–0.9 mm long, lengthening

after anthesis, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc concave or flat; ovules 17–19 per loculus, arranged radially around placenta. Fruit hemispherical, c. 2 × 4 mm; valves triangular, somewhat woody, at about rim level. Seeds D-shaped, with flat sides and rounded backs, c. 0.6 mm long, smooth, brown; hilum terminal. **Fig. 1 A–D.**

Specimens examined: Queensland. COOK DISTRICT: 0.5 km SE of Mt Tozer, Sep 1976, *Lavarack* 1015 (BRI); summit of Mt Tozer, Iron Range, Jul 1988, *Thomas* 300 (BRI). Cultivated: Currumbin Valley, Sep 1976, *Jones* s.n. (PERTH); Atherton, Jan 1993, *Bean* 5730 (BRI); Kilcoy, Jun 1993, *Bean* 6124 (BRI); Yandina, Dec 1993, *Bean* 7196 (BRI); Swann Rd, Taringa, Brisbane, Mar 1995, *Bean* 8402 (A, BRI, K, L, MEL, NSW).

Distribution and habitat: *B. tozerensis* is known only from granite rock crevices on the windswept mountaintop and upper slopes of Mt Tozer on Cape York Peninsula, Queensland (**Map 3**). Some associated species are *Philotheca* sp. (Mt Tozer *L.J. Brass* 19483), *Leptospermum purpurascens* Joy Thomps. and *Grevillea pteridifolia* Knight.

Phenology: Unknown for wild populations. Cultivated plants may flower throughout the year, except in winter.

Affinities: *B. tozerensis* is related most closely to *B. crenulata* (see notes under that species). It is also allied to *B. virgata*, because of its ovules arranged radially around the placenta, and the 3–7- flowered inflorescence.

Notes: This species was introduced into cultivation as an ornamental in the early 1970s by Bruce Gray (QRS) and David Jones (CANB), and is now a reasonably common garden subject in Queensland. It is likely that all cultivated plants are of the same genotype as the initial plant grown. It is interesting to note that all cultivated material examined has 7-flowered umbellasters, while all of the wild-collected specimens seen have 3-flowered umbellasters.

Conservation status: The risk category for *Babingtonia tozerensis*, according to the criteria of Chalson & Keith (1995) is 'endangered' (criterion D). The species is known only from the type locality. It is under threat from its small population size and specialised habitat.

The recommended conservation status for this species as defined by the Queensland *Nature Conservation Act 1992* is 'endangered'.

Etymology: The species epithet, *tozerensis*, refers to the locality (Mt Tozer) where the species occurs.

7. *Babingtonia crenulata* (F.Muell.) A.R.Bean comb. nov.

Camphoromyrtus crenulata F.Muell., Trans. & Proc. Victorian Inst. Advancem. Sci. 123 (1855); *Baeckea crenatifolia* F.Muell., Fragm. 4: 70 (1864), nom. nov.; *Baeckea crenulata* (F.Muell.) Druce, Bot. Exch. Club Soc. Brit. Isles Supp. 2, p. 608 (1917), nom. illeg., non (Sm.) DC. **Type:** Victoria. Buffalo Range, undated, F.Muellers.n. (lecto: MEL [MEL 72636] (here chosen); isolecto: BM, K).

Harmogia crenulata Miq., Ned. Kruidk. Arch. 4: 148 (1856). **Type:** Victoria. On the Buffalo Creek and in the rocky valleys towards Mt. Aberdeen, 28 February 1853, F.Muellers.n. (holo: MEL [MEL72635]).

Illustration: L. Costermans, Native Trees & Shrubs of S.E. Austral. p. 242 (1983) as *Baeckea crenatifolia*.

Shrub to 2.5 m high. Bark unknown. Stem flanges white to grey, flat, slightly winged, warty, margins irregular, Leaves obovate, 4.2–6.1 mm long, 2.0–4.2 mm wide, straight, flat in cross-section, obtuse, not keeled, margins crenulate; oil glands visible on both surfaces; midrib faintly visible; petiole 0.6–0.9 mm long. Inflorescence axillary, 3-flowered, rarely 4–7 flowered; peduncle 4.0–10.5 mm long; pedicels 5.3–8.5 mm long; bracteoles numerous at top of peduncle, caducous, lanceolate, c. 1.4 × 0.3 mm, acute. Hypanthium obconical, 1.6–1.9 mm long, smooth or faintly 5-ribbed, fused to the ovary throughout. Sepals compound; inner lobe semiorbicular, 0.6–0.9 × 1.5–1.6 mm, thin, entire; outer lobe acute, thick, 0.2–0.6 mm long, erect. Corolla white, up to 9 mm across; petals orbicular, 3.0–3.5 mm across, entire; oil glands present. Stamens 12–14, in groups of 1–3(4) opposite each sepal, stamen opposite sepals shorter than remainder;

filaments terete, 0.6–0.9 mm long, geniculate, with brown connective gland fused to upper part of filament at the bend; anthers adnate, c. 0.2 mm long, dehiscent by short divergent slits, anther loculi free. Style c. 0.5 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc flat; ovules 16–18 per loculus, arranged radially around placenta. Fruit hemispherical, c. 2 × 3.5 mm; valves obtuse, not woody, more or less at rim level. Seeds not seen.

Specimens examined: Victoria. Buffalo Ranges, Mar 1853, Muellers.n. (MEL); Mt Aberdeen, undated, Mueller s.n. (NSW); Buffalo Mountains, Jan 1892, Walter s.n. (MEL); Buffalo Mts, Nov 1903, Walter s.n. (MEL); Rollasons Falls, on Buffalo Creek, Mt Buffalo NP, Jan 1982, Walsh 663 (MEL); Eurobin Creek, Buffalo, Dec 1902, Weindorfer 551 (MEL); Eurobin Creek Camp, Jan 1950, Robbins s.n. (MEL); Mt Hotham, Jan 1900, Maiden s.n. (NSW).

Distribution and habitat: *B. crenulata* is apparently confined to the Mt Buffalo National Park and adjacent areas in southern Victoria (Map 2) where it is known from two small populations. There is also an old record from Mt Hotham. It grows on creek banks in sandy soil derived from granite.

Phenology: Flowers have been recorded from November to March.

Affinities: *B. crenulata* is most closely related to *B. tozerensis*, a species which inhabits the opposite end of the continent. *B. crenulata* differs by its somewhat smaller leaves, crenulate leaf margins and its compound sepals.

Conservation Status: The risk category for *Babingtonia crenulata* according to the criteria of Chalson & Keith (1995) is 'endangered' (criteria A, B1, B2 and D). Two small populations are known; the Rollasons Falls population lies entirely within Mt Buffalo National Park, while only part of the Eurobin Creek population lies inside the National Park (Neville Walsh, Peter Jenkins, pers. comm. 1995).

8. *Babingtonia densifolia* (Sm.) F.Muell., Fragm. 4: 74 (1864). *Baeckea densifolia* Sm., Trans. Linn. Soc. London 3: 260 (1797); *Harmogia densifolia* (Sm.) Schauer, Linnaea 17: 238 (1843). **Type:**

New South Wales. Port Jackson, s. dat., *White* s.n. (holo:LINN, n.v., BRI microfiche).

Baeckea fasciculata Spreng., Syst. Veg. 4: Curae Posteriores 149 (1827). **Type:** Nov. Holl., [in 1823], *F. Sieber* 279 (iso: K).

Harmogia propinqua Schauer, Repert. Bot. Syst. 2: 921 (1843). **Type:** New South Wales. Fork of Croker's Range, W from Wellington Valley and near Bathurst, Nov 1825, *A. Cunningham* 32/1825 (iso: BM, K (3 sheets)).

Harmogia baueriana Schauer, Repert. Bot. Syst. 2: 921 (1843). **Type:** Nova Hollandia, s. dat., *F. Bauer* s.n. (holo: ?W, n.v.).

Baeckea nova-anglica F. Muell., Fragm. 4: 71 (1864); *Babingtonia nova-anglica* (F. Muell.) F. Muell., Fragm. 4: 74 (1864). **Type:** New South Wales. near Tenterfield, New England, s. dat., *C. Stuart* s.n. (iso: K).

Illustration: K.A.W. Williams, Native Pl. Queensl. 3: 36 (1987), as *Baeckea densifolia*.

Shrub to 1.5 m high. Bark grey, scaly, persistent. Stem flanges grey, flat, not winged, not warty, entire. Leaves linear, 1.8–4.5 mm long, 0.5–0.6 mm wide, straight, plano-convex, uncinatate, not keeled, entire; oil glands visible on lower surface; no veins visible; petiole c. 0.3 mm long. Inflorescence axillary, 1-flowered; peduncle 1.2–2.5 mm long; pedicels 0.4–1.0 mm long; bracteoles 2, narrowly triangular, c. 1.1 × 0.4 mm, caducous, acute. Hypanthium smooth, obconical, 1.5–1.7 mm long, fused to the ovary throughout. Sepals simple, obtuse, 0.4–0.6 × 1.2–1.5 mm, thin, entire. Corolla white, up to 7.5 mm across; petals orbicular, 2.5–3.1 mm wide, entire; oil glands absent. Stamens 7–10, opposite sepals or scattered, stamens opposite sepals shorter than remainder; filaments terete, c. 0.75 mm long, geniculate, with black connective gland fused to upper part of filament at bend; anthers adnate, c. 0.2 mm long, dehiscing by elliptical pores; anther loculi fused. Style c. 0.5 mm long, set into a pit; stigma capitate. Ovary 3-locular; floral disc concave; ovules 11–13 per loculus, arranged

radially on placenta. Fruit hemispherical, 1.5–1.8 × 2.2–2.5 mm; valves triangular, not woody, exserted. Seeds cuboid, with flat sides and rounded backs, surface smooth, c. 0.8 mm long, brown; hilum terminal.

Selected specimens: Queensland. NORTH KENNEDY DISTRICT: Mount Stewart Range, 14 km NW of Homestead, Sep 1991, *Thompson* 333 & *Dillewaard* (BISH, BRI). SOUTH KENNEDY DISTRICT: 53 km N of Jericho, Jun 1993, *Thompson* JER78 & *Figg* (BRI). MITCHELL DISTRICT: on Jericho-Blackall road, 20 km SW of Jericho, Jul 1989, *McKenzie* (BRI). LEICHHARDT DISTRICT: 'Wallaroo', 68 km N of Injune, Nov 1993, *Bean* 6891 (BRI). MARANO DISTRICT: 6.6 km N of 'Yoothapinna', Injune district, Sep 1974, *Gittins* 2759 (BRI). BURNETT DISTRICT: 'Melrose', 15 km W of Eidsvold, Aug 1990, *Bean* 2109 (BRI); SF 130, 2 km NW of Nantglyn, Oct 1988, *Forster* PIF4792 (BRI, CANB, K, MEL, MO, NSW). WIDE BAY DISTRICT: Timber reserve 375 Boompa, south of Mt Walsh, Nov 1978, *Stanton* s.n. (BRI). DARLING DOWNS DISTRICT: North Dulacca, 25 miles [42 km] NW of Miles, Sep 1955, *Jackson* s.n. (BRI); Barakula State Forest, Oct 1984, *Williams* 84171 (BRI); headwaters of Pariagara Creek, 7 km W of Bringalily Forestry lookout tower, Sep 1992, *Forster* PIF11664 & *Machin* (BRI, MEL, PERTH); Lyra, Nov 1959, *Blake* 21087 (BRI, K, MO, NSW). New South Wales. NORTH WESTERN SLOPES: Flagstone Hill, Howell, SSE of Inverell, *Powell* 1114 & *Armstrong* (BRI, NSW); Pilliga scrub, c. 38 miles [61 km] N of Coonabarabran on Newell Highway, Oct 1972, *Williams* s.n. (NE). CENTRAL TABLELANDS: Newnes Junction, Blue Mtns, Dec 1911, *Hamilton* s.n. (A, NSW). CENTRAL WESTERN SLOPES: Bumberry, Nov 1906, *Boorman* s.n. (GH, NSW); Giants Creek, 28 km SE of Merriwa, Dec 1973, *Streimann* s.n. (A, BRI, CANB, K, L); Harvey Ranges, Peak Hill, Nov 1905, *Boorman* s.n. (A, BM). CENTRAL COAST: Wedderburn, Sydney, Jan 1983, *Lambley* s.n. (NE); 2 miles [3 km] from Marulan-Tallong road on the Long Point lookout road, May 1954, *Briggs* s.n. (NE).

Distribution and habitat: *B. densifolia* has a broad distribution extending from near Charters Towers in north Queensland, south to near Nowra in New South Wales, but usually away from the coast (**Map 2**).

It inhabits heathland or open woodland communities on rocky sites or in shallow sands. Some associated species include *Calytrix tetragona* Labill., *Melaleuca tamariscina* Hook., *Lophostemon confertus* and *Eucalyptus petalophylla* Brooker & A.R.Bean.

Phenology: Flowers have been recorded between July and December; fruits have been recorded between August and December.

Affinities: *B. densifolia* shows some affinity with *B. virgata* in fruit morphology, and

because the ovules are radially arranged around the placenta. However, *B. densifolia* has 1-flowered inflorescences while *B. virgata* has 3–7 flowered inflorescences.

Conservation status: A widespread species which is not rare or threatened.

9. *Babingtonia behrii* (Schltdl.) A.R.Bean comb. nov.

Camphoromyrtus behrii Schltdl., *Linnaea* 20: 651 (1847); *Baেকে behrii* (Schltdl.) F.Muell., *Fragm.* 4: 68 (1864). **Type:** South Australia, near Bethanien, 10 January 1845, *H.H.Behr* s.n. (holo: HAL).

Illustration: L.Costermans, *Native Trees & Shrubs of S.E. Austral.* p. 242 (1983), as *Baেকে behrii*.

Shrub to 2 m high. Bark light-grey, flaking, persistent. Stem flanges pink or grey, flat, not or slightly winged, warty, entire. Leaves linear, 3.3–9.0 mm long, 0.5–0.8 mm wide, straight, plano-convex, uncinata, not keeled, entire; oil glands prominent on lower surface, often tuberculate on dried material; no veins visible; petiole 0.5–0.8 mm long. Inflorescence axillary, 3-flowered, but 1 or both lateral flowers usually aborting before maturity; peduncle 3.5–5.2 mm long; pedicels 1.2–2.6 mm long; bracteoles 2, linear, c. 2.0 × 0.2 mm, acuminate, caducous. Hypanthium obconical, 1.5–2.2 mm long, smooth, fused to the ovary except at top. Sepals simple, obtuse, 0.4–0.9 × 0.8–1.5 mm, thin, entire. Corolla white, up to 10 mm across; petals orbicular, 3.0–4.0 mm across, entire, oil glands present. Stamens 9–12, not opposite centre of petals, all about same length; filaments terete, 0.6–1.2 mm long, geniculate, with yellow connective gland fused to upper part of filament at bend; anthers adnate, c. 0.4 mm long, dehiscent by pores; anther loculi fused. Style c. 0.8 mm long, set into a pit; stigma capitate. Ovary 3-locular; floral disc flat; ovules 11–13 per loculus, arranged radially around placenta. Fruit hemispherical, 1.7–2.2 × 3.0–3.6 mm; valves triangular, woody, at rim level or slightly exerted. Seeds D-shaped, c. 0.8 mm long, with flat sides and rounded backs, finely reticulate, brown; hilum terminal.

Specimens examined: Victoria: Pink Lakes State Park, Nov 1986, *Chesterfield* 1829 & *Williamson* (MEL); east campground, Little Desert NP, Oct 1988, *Overton* 1061

(MEL); Winiam, Little Desert, Oct 1978, *Errey* 1495 (MEL); Red Bluff, Big Desert, Oct 1984, *Albrecht* 1206 (MEL); 100 m east of Border track, Big Desert, Apr 1985, *Ashburner* 391 (AD, CANB, MEL, NSW); South park area, Hattah Lakes NP, Sep 1969, *Anderson* 18 (MEL); NW corner of Kiata-Lowan sanctuary, Little Desert NP, Nov 1978, *Cooke* 214 (MEL); Sunset country, 91 km 209° from Mildura, Oct 1977, *Cummings* 214 et al. (CANB, MEL, PERTH); along Sunset track south of Rocket Lake, Nov 1980, *Luly* ANU30095 (MEL); Dimboola shire, Dec 1890, *Reader* s.n. (MEL); 10 km south on track from Murrayville to Nhill, Apr 1991, *Spencer* 1125 & *Worboys* (MEL); 14 km W of Nhill, Nov 1989, *Nordenstam* & *Anderberg* 1102 (MEL); Kingower, next to Gold Mine entrance, Apr 1991, *Spencer* 876 & *Worboys* (MEL); W. Wimmera, Sep 1888, *French* s.n. (GH); Mt Thackeray, Grampian Mtns, Nov 1921, *Audas* s.n. (A); Murrayville, Oct 1912, *Williamson* s.n. (A); Dimboola, Oct 1911, *Williamson* s.n. (A); Tarnagulla Flora Reserve, 0.8 km west of Tarnagulla, Nov 1989, *Cheers* 112 (MEL).

Distribution and habitat: *B. behrii* occurs in north-western Victoria, especially in the Big Desert and Little Desert, and with a disjunct occurrence near Kingower NW of Bendigo (Map 2). It also extends into South Australia and Western Australia. It grows in heathlands, shrublands and open mallee communities, in sandy soils, often on sand dunes or ridges. Associated species include *Eucalyptus socialis* Miq., *E. incrassata* Labill., *Leptospermum coriaceum* (Miq.) Cheel, *Melaleuca wilsonii* F.Muell., *M. uncinata* R.Br. and *Micromyrtus ciliata* (Sm.) Druce.

Phenology: Flowers are recorded from September to December, with one record in February. Fruits are recorded from November to April.

Note: The type locality of *Camphoromyrtus behrii*, Bethanien, was a small pioneer German settlement in South Australia, 3 km east of Tanunda township. It is now known as Bethany (Kraehenbuehl 1981). Kraehenbuehl recorded finding a small remnant 'sand scrub', on the sandplain north-east of Tanunda, and close to Bethany. This is likely to be where Behr collected the type material of *C. behrii*.

Affinities: *B. behrii* is related to *B. densifolia* and *B. cunninghamii*. From *B. densifolia*, it differs by the uncinata leaf apex and the often 2- or 3- flowered inflorescence. From *B. cunninghamii*, it differs by the linear leaves with entire margins and the simple sepals.

Conservation status: A widespread and common species; conserved in Little Desert National Park.

10. Babingtonia cunninghamii (Schauer)
A.R.Bean **comb. nov.**

Harmogia cunninghamii Schauer, Repert. Bot. Syst. 2: 921 (1843); *Baeckea cunninghamii* (Schauer) Benth., Fl. Austral. 3: 82 (1867). **Type:** New South Wales, west from Wellington Valley, in 1825, *A. Cunningham* 23/1825 (holo: BM, photo BRI).

Shrub to 1 m high. Bark unknown. Stem flanges grey or reddish, flat, not winged, not warty, margins lacinate. Leaves triangular, obovate, orbicular or oblong, 1.2–2.4 mm long, 0.9–2.5 mm wide, straight, flat, obtuse, not keeled, margins irregularly lobed or denticulate, rarely entire; oil glands visible on lower surface; no veins visible; petiole 0.4–0.7 mm long. Inflorescence axillary, 1–3 flowered; peduncle 1.0–3.8 mm long; pedicels 2.5–3.8 mm long, bracteoles 2–4, narrowly ovate, c. 0.4 × 0.1 mm, acute, caducous. Hypanthium smooth, obconical, 1.2–1.5 mm long, fused to the ovary except at top. Sepals compound; inner lobe obtuse, 0.4–0.5 × 0.7–1.1 mm, thin, entire; outer lobe acuminate, 0.8–1.1 mm long, thin, erect or spreading. Corolla white, up to 7 mm across; petals orbicular, 1.6–2.5 mm across, margins entire; oil glands present. Stamens 7–9, scattered, all about same length; filaments terete, c. 0.6 mm long, geniculate, with brown connective gland fused to upper part of filament at the bend; anthers adnate, c. 0.2 mm long, dehiscent by short divergent slits; anther loculi fused. Style 0.4–0.8 mm long, set into a pit; stigma capitate. Ovary 3-locular; floral disc concave; ovules 12–14 per loculus, arranged radially around placenta. Fruit hemispherical, 1.5–1.9 × 2.1–2.5 mm; valves triangular, chartaceous, at rim level or enclosed. Seeds D-shaped, c. 0.6 mm long, with flat sides and rounded backs, finely reticulate, brown; hilum terminal.

Specimens examined: New South Wales. NORTH WESTERN PLAINS: 30 miles [48 km] from Narrabri on the Coonabarabran road, Nov 1964, *McRreadie* s.n. (NSW); Bohena Creek to Boggabri, Aug 1911, *Jensen* s.n. (NSW).

NORTH WESTERN SLOPES: Pilliga Nature Reserve, 2.7 km along No 1 break road off highway, Nov 1993, *Forster* PIF 14204 & *Machin* (AD, BRI, CANB, MEL, NSW); Pilliga East SF, on Newell Highway, Nov 1985, *Mackay* 408 (NE, NSW); Timallallee SF, old Baradine road, Nov 1985, *Mackay* 416 (NE, NSW); Timallallee Creek at Newell Highway, Nov 1976, *Fox* s.n. (NSW). CENTRAL WESTERN SLOPES: Bumbery, Nov 1906, *Boorman* s.n. (GH, NSW); 0.7 km S of road from Sandy Hollow to Bylong, 2.6 km from Baerami, Sep 1985, *Abell* 154 (BRI, NSW); c. 12 km from Rylstone on Breakfast Creek road, W of Breakfast Creek on Rylstone-Bylong road, Oct 1987, *Coveny* 12754 (NSW, PERTH); Killonbutta S.F., Forbes district, Nov 1968, *Turner* s.n. (NSW); Reedy Creek, Rylstone, Sep 1938, *Cross* s.n. (NSW); Lue near Mudgee, Apr 1901, *Boorman* s.n. (NSW); Lower Dingo Creek, Goulburn River valley, c. 4 km W of Baerami, Nov 1984, *James* 641 et al. (K, NSW, PERTH); Baldry, Aug 1964, *Debenham* s.n. (NSW); Bearbong road, Nov 1961, *McRreadie* s.n. (NSW); Goulburn River, 35 miles [56 km] NW of Rylstone, Aug 1969, *Ryan* s.n. (NSW); Fern-Tree Gully, c. 25 km NNW of Kandos, Dec 1990, *Ford* 183 (NSW); near Cobbarah, Oct 1907, *Forsyth* s.n. (NSW); Home Rule near Gulgong, Dec 1916, *Boorman* s.n. (NSW); Manildra 'Claremont', Nov 1992, *Schmid* s.n. (NSW).

Distribution and habitat: *B. cunninghamii* is endemic to New South Wales and occurs west of the Great Dividing Range between Pilliga State Forest and Cowra (**Map 1**). It grows in shrubby eucalypt woodland in sand or sandy loam, and may be associated with *Eucalyptus fibrosa* subsp. *nubila* (Maiden & Blakely) L.A.S.Johnson, *E. rossii* R.T.Baker & H.G.Sm., *Callitris endlicheri* (Parl.) F.M.Bailey, *Melaleuca thymifolia* Sm. and *Leucopogon* spp.

Phenology: Flowers are recorded between September and December, and fruits from November to April.

Affinities: *B. cunninghamii* is a distinctive species by virtue of its small irregularly lobed leaves. It is related to *B. behrii* but differs greatly in leaf morphology and by its compound sepals. *B. cunninghamii* is also related to *B. jucunda* but differs from that by the ovules radially arranged around the placenta, and the often 3-flowered inflorescence (1-flowered in *B. jucunda*).

Conservation status: A widespread species which is not rare or threatened.

**11. *Babingtonia jucunda* (S.T.Blake)
A.R.Bean comb. nov.**

Baeckea jucunda S.T.Blake, Proc. Roy. Soc. Queensland 69: 75 (1958). **Type:** Queensland. DARLING DOWNS DISTRICT: Glenmorgan, October 1957, *D.Gordon* s.n. (holo: BRI; iso: A, CANB, MEL).

Illustration: K.A.W.Williams, Native Pl. Queensl. 2: 52 (1984), as *Baeckea jucunda*.

Shrub to 2.5 m high. Bark grey, rough, with shallow vertical fissures. Stem flanges grey, flat, not winged, not warty, entire. Leaves obovate, 1.5–3.0 mm long, 0.9–1.2 mm wide, recurved, concavo-convex, apex acute, not keeled, entire or denticulate; oil glands prominent on lower surface; no veins visible; petiole 0.25–0.5 mm long, black. Inflorescence axillary, 1-flowered; peduncle 1.5–2.2 mm long; pedicels 2.0–4.2 mm long; bracteoles 2, cymbiform, c. 0.8 × 0.2 mm, acute, persistent. Hypanthium campanulate, 1.9–2.0 mm long, 5-ribbed, otherwise smooth, fused to the ovary except at top. Sepals compound; inner lobe obtuse, c. 0.5 × 1.0 mm, thin, fimbriate; outer lobe obtuse, c. 0.3 mm long, thick, erect. Corolla white, up to 7 mm across; petals orbicular, 2.0–2.8 mm across, margins fimbriate; oil glands present. Stamens (3)4–5, mostly opposite the sepals, all about the same length; filaments terete, c. 0.5 mm long, geniculate, with brown to black connective gland fused to upper part of filament at the bend; anthers adnate, c. 0.25 mm long, dehiscing by short divergent slits; anther loculi fused. Style c. 0.5 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc concave; ovules 8–9 per loculus, arranged in two longitudinal rows on placenta. Fruit broadly-obconical, c. 1.5 × 3.5 mm, 5-ribbed; valves woody, exserted. Seeds cuboid, with flat sides and rounded backs, c. 1.0 mm long, reticulate, brown; hilum terminal.

Specimens examined: Queensland. MARANOVA DISTRICT: Silver Springs, c. 35 km S of Surat, Aug 1992, *Scheffé* CMW 1320 (BRI). LEICHHARDT DISTRICT: Woleebee road, 15 km W of Gurulmundi, Aug 1977, *Williams* 77166 (BRI). BURNETT DISTRICT: Waaje, north-west corner of Barakula SF, Mar 1994, *Bean* 7561 (BRI, NSW). DARLING DOWNS DISTRICT: 45 km NW of Chinchilla, Aug 1982, *Dillewaard* 943 (BRI, NSW); near Miles, Aug 1978, *Nosworthy* s.n.

(BRI); Chinchilla-Tara road, 24 km S of cross-road junction of Condamine Highway, Oct 1975, *Williams* 75073 (BRI); 2.7 km NW of Kogan, Nov 1993, *Bean* 6844 (BRI, MEL, NSW); 6.4 miles [10.3 km] SW of Kogan on Tara road, May 1961, *Smith* 11352 (BRI); Moonie Highway, 61 km from road junction to Lake Broadwater, May 1989, *Williams* 89012 (AD, BRI); Western Creek SF, c. 8 km W of Western Creek Forestry Station, Jul 1994, *Grimshaw* PG851 & *Taylor* (BRI); 40 miles [64 km] north of Goondiwindi, Jul 1958, *Johnson* 546 (BRI). New South Wales. NORTH WESTERN PLAINS: Pilliga East SF, County Line road, 1 km N Cubbo Creek SF, Dec 1987, *Mackay* 507 (NSW).

Distribution and habitat: In Queensland, *B. jucunda* occurs as far north as the Great Dividing Range, north of Chinchilla and Miles. It is otherwise scattered through the western Darling Downs, and appears to be quite common around Kogan. In New South Wales there is a single record of it from the Pilliga area (**Map 3**). The species grows in heathland or woodland on rocky lateritic pavements with gravelly loam or red sandy soil. Associated species include *Acacia catenulata* C.T.White, *Casuarina inophloia* F.Muell. & F.M.Bailey, *Eucalyptus trachyphloia* F.Muell. and *Homalocalyx polyandrus* (F.Muell.) Benth.

Phenology: Flowers have been recorded between May and December, but Hando (1988) suggested that it may flower at any time, in response to rain. Fruits can be found at most times of the year.

Affinities: *B. jucunda* is most closely related to *B. prominens* and *B. silvestris* but differs from these species by its fewer stamens, smaller leaves and the 5-ribbed hypanthium. *B. jucunda* differs from *B. cunninghamii* by the strictly 1-flowered inflorescences and the ovules arranged in 2 rows on the placenta.

Note: Blake (1958) recorded 3 to 6 stamens in the flowers of *B. jucunda*. The presence of six stamens in a flower must be a rare occurrence as I was unable to find any such flowers.

Conservation status: Although this species is sporadically distributed, it is not considered to be rare or threatened. No conservation coding is warranted at this time.

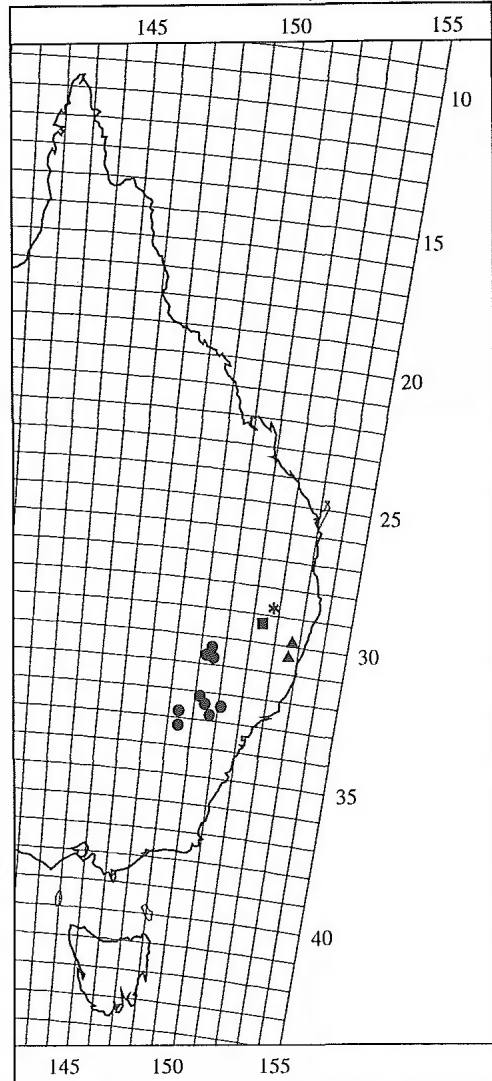
12. *Babingtonia prominens* A.R.Bean sp. nov.
B. jucundae affinis a qua foliis majoribus, bracteolis longioribus, hypanthio muricato et staminibus pluribus differt. **Typus:** New

South Wales. NORTH COAST: 1 km north-east of Nymboida, 25 April 1994, A.R.Bean 7672 (holo: BRI; iso: A, K, MEL, NSW).

Shrub to 2.5 m high. Bark grey, scaly and persistent. Stem flanges grey, flat, winged, not warty, entire. Leaves elliptic, 3.5–4.1 mm long, 1.8–2.1 mm wide, straight or somewhat curved, flat, obtuse, not keeled, entire; oil glands prominent on lower surface, evenly scattered; midrib not or faintly visible; petiole c. 0.5 mm long. Inflorescence axillary, 1-flowered; peduncle 1.0–2.5 mm long; pedicels 2.5–6.0 mm long; bracteoles 2, linear, 1.5–2.5 × 0.4–0.5 mm, acute, persistent. Hypanthium obconical, 2.0–2.5 mm long, muricate, fused to the ovary except at top. Sepals compound; inner lobe obtuse, 0.3–0.5 × 1.0–1.3 mm, thick, entire; outer lobe acuminate, 1.0–1.3 mm long, thick, erect. Corolla white, up to 8 mm across; petals orbicular, 2.6–3.0 mm across, fimbriate, oil glands absent. Stamens 8–10, one stamen opposite each sepal, the remainder scattered, but never opposite a petal; filaments terete, not geniculate, sepaline filaments c. 0.5 mm long, other filaments c. 0.8 mm long, with brown connective gland; anthers adnate, c. 0.3 mm long, dehiscent by small slits; anther loculi fused. Style c. 0.5 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc concave; ovules 10–11 per loculus, arranged in two longitudinal rows on placenta. Fruit hemispherical, 2.0–2.2 × 3.5–4.0 mm; valves woody, slightly exserted. Seeds D-shaped, with flat sides and rounded backs, c. 1.0 mm long, minutely reticulate, pale brown; hilum terminal. **Fig. 1 E–I.**

Specimens examined: New South Wales, NORTH COAST: Wild Cattle Creek SF, Dorrigo district, Sep 1993, *Binns* 4325 (BRI, NSW); 1 km north-east of Nymboida, Nov 1994, *Bean* 8039 (BRI, MEL, NE, NSW).

Distribution and habitat: *B. prominens* is apparently confined to the Nymboida area of New South Wales where it is known from two populations (**Map 1**). It grows on steep hillsides, on shallow sandy soils derived from sandstone or granite, in association with *Eucalyptus procarpa* L.A.S.Johnson & Blaxell or *E. acmenoides* Schauer.



Map 1. Distribution of *Babingtonia* spp.

● *B. cunninghamii*, ■ *B. odontocalyx*, * *B. granitica*,
▲ *B. prominens*.

Phenology: Flowers have been recorded in April, September and November; fruits have been found in April and November.

Affinities: *B. prominens* differs from *B. jucunda* by its larger leaves, muricate hypanthium and more numerous stamens. *B. prominens* differs from *B. silvestris* by its muricate hypanthium (smooth for *B. silvestris*); leaves with a length: breadth ratio of 1.7–2.2:1 (1.2–1.7:1 for *B. silvestris*); petals without oil glands, petals 2.6–3.0 mm long (1.5–2.3 mm

for *B. silvestris*); and 10 or 11 ovules per loculus (7 or 8 for *B. silvestris*).

Conservation status: The risk category for *Babingtonia prominens* according to the criteria of Chalson & Keith (1995) is 'endangered' (criterion C1). The species is known from two populations. The population of *B. prominens* at the type locality is large, with over a thousand plants. At the other known locality, there are less than 50 plants.

Etymology: The epithet *prominens* is Latin for prominent and refers to the relatively large flowers which are conspicuously displayed on long peduncles.

13. *Babingtonia silvestris* A.R.Bean sp. nov.

B. prominens affinis a qua hypanthio laevi, petalis minoribus glandulis oleosis ferentibus et ovulis paucioribus in quoque loculo differt. **Typus:** Queensland. DARLING DOWNS DISTRICT: Bald Mountain, SW section of Girraween National Park, 27 January 1995, A.R.Bean 8221 (holo: BRI; iso: AD, CANB, K, L, MEL, NSW, PERTH).

Shrub to 2.5 m high. Bark grey, finely lined or grooved, to slightly fibrous, furrowed. Stem flanges grey, flat, not winged, not warty, entire. Leaves ovate to elliptic, 3.0–4.5 mm long, 1.5–3.3 mm wide, straight, flat, obtuse, not keeled, entire; oil glands visible on lower surface, scattered; midrib not or faintly visible; petiole 0.6–1.0 mm long. Inflorescence axillary, 1-flowered, rarely 3-flowered; peduncle 1.2–2.5 mm long; pedicels 2.7–4.0 mm long; bracteoles 2, ovate, c. 2.5 × 1.2 mm, persistent, obtuse. Hypanthium smooth, obconical, 2.2–2.8 mm long, fused to the ovary except at top. Sepals compound; inner lobe obtuse, c. 0.3 × 1.0 mm, thin, margins entire; outer lobe acuminate, 1.3–1.7 mm long, thick, erect or spreading. Corolla white, up to 8 mm across; petals orbicular to elliptic, 1.5–2.3 × 2.0–2.4 mm, margins fimbriate; oil glands present. Stamens 8–10, none opposite the petals, stamens opposite sepals slightly shorter than remainder; filaments terete, c. 0.8 mm long, geniculate, with brown connective gland fused to upper part of filament at bend; anthers adnate, c. 0.3 mm long, dehiscing by short divergent slits;

anther loculi fused. Style c. 0.2 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc concave; ovules 7–8 per loculus, arranged in two longitudinal rows on placenta. Fruit hemispherical, 2.0–2.5 × 4.5–5.0 mm; valves triangular, woody, exserted. Seeds cuboid, with flat sides and rounded backs, c. 1 mm long, minutely reticulate, brown; hilum terminal. **Fig. 1 J–N.**

Specimens examined: Queensland. DARLING DOWNS DISTRICT: south-western side of Girraween N.P., near Bald Mountain, Sep 1974, McDonald 447 (BRI); Girraween N.P., high ridges N.E. of Castle Rock, Mar 1976, Grimshaw s.n. (BRI); southern slope of Bald Mountain, SW section of Girraween NP, Sep 1994, Grimshaw G979 & Turpin (BRI). New South Wales. NORTH COAST: Dibbs Head, about 8 miles [13 km] east of Dorrigo, Aug 1972, Williams 72–204 (BRI, NE). Cultivated: Coffs Harbour, ex Mobong Falls, NW of Dorrigo, Feb 1995, Nehl s.n. (NE).

Distribution and habitat: *B. silvestris* is known from a few scattered localities, namely the Girraween National Park near the Queensland-New South Wales border, Mobong Falls near Dorrigo, and the Dorrigo National Park east of Dorrigo. (**Map 3**). It grows in mixed shrublands in pockets of soil amongst bare granite or rhyolite rock outcrops, associated with species such as *Eucalyptus prava* L.A.S.Johnson & K.D.Hill, *Leptospermum brevipes* F.Muell., *Leucopogon melaleuroides* DC. and *Lepidosperma laterale* R.Br. Nearby areas support forest tree species, including *Eucalyptus campanulata* R.T.Baker & H.G.Sm. and *E. saligna* Sm.

Phenology: It apparently flowers sporadically over several months of the year (pers. obs.)

Affinities: *B. silvestris* is closely related to *B. prominens* (see notes under that species). *B. silvestris* differs from *B. jucunda* by its larger leaves, longer bracteoles, entire margins of its inner sepals, and the greater number of stamens.

Conservation status: The risk category for *Babingtonia silvestris* according to the criteria of Chalson & Keith (1995) is 'endangered' (criteria B1 and B2). The species is known from three populations. At the type locality, between 55 and 75 plants of reproductive age have been counted. The population sizes for

the other localities are not known, but they are probably not larger than the type population.

The recommended conservation status for this species as defined by the Queensland *Nature Conservation Act 1992* is 'endangered'.

Etymology: The epithet, Latin for *of the forest, or woods*, refers to the species' habitat.

14. Babingtonia squarrulosa (Domin)
A.R.Bean **comb. nov.**

Baekkea squarrulosa Domin, *Biblioth. Bot.* 89: 450 (1928). **Type:** Queensland. NORTH KENNEDY DISTRICT: sandstone of Dividing Range near Pentland, February 1910, K.Domin s.n. (holo: PR (2 sheets)).

Shrub to 1.4 m high. Bark grey, persistent, furrowed. Stem flanges grey, flat, not winged, not warty, entire. Leaves broadly ovate to orbicular, 0.9–1.5 mm long, 0.6–1.4 mm wide, recurved, concavo-convex, acute or obtuse, keeled, entire or minutely denticulate, oil glands visible on lower surface, scattered; no veins visible; petiole 0.1–0.25 mm long. Inflorescence axillary, 1-flowered; peduncle absent; pedicels absent; bracteoles 2, ovate, c. 1.5 × 1.0 mm, persistent, acute. Hypanthium smooth, broadly obconical, 1.5–1.6 mm long, fused to the ovary throughout. Sepals compound; inner lobe obtuse, 0.4–0.5 × 1.0–1.1 mm, thin, margins fimbriate; outer lobe acuminate, 0.7–1.2 mm long, thick, spreading or erect. Corolla white, up to 6 mm across; petals orbicular, 1.8–2.0 mm across, margins fimbriate, oil glands present. Stamens 8–10, scattered, but never opposite centre of petals, antesealous stamens slightly shorter than remainder; filaments terete, c. 0.5 mm long, geniculate, with brown connective gland fused to upper part of filament at the bend; anthers adnate, c. 0.2 mm long, dehiscing by short divergent slits; anther loculi fused. Style c. 0.6 mm long, set into a pit; stigma capitate, trilobed. Ovary 3-locular; floral disc flat or concave; ovules 6–8 per loculus, arranged in two longitudinal rows on placenta. Fruit hemispherical, 1.3–1.8 × 2.3–3.5 mm; valves obtuse, not woody, exerted after dehiscence. Seeds D-shaped, with flat sides and rounded backs, c. 1.2 mm long, tuberculate, pale brown; hilum terminal. **Fig. 2 A–D.**

Specimens examined: Queensland. NORTH KENNEDY DISTRICT: Burra Range lookout, SW of Pentland, Feb 1994, Bean 7490 & Forster (A, BRI, K, L, MO, NSW); Burra Range Lookout, White Mountains NP, May 1995, Forster PIF16489 & Figg (BRI, CANB, MEL, NSW). MITCHELL DISTRICT: Upper Torrens Creek area, Flinders shire, Nov 1983, Lawrie s.n. (BRI); near Old Poison Valley road, White Mountains NP, Apr 1992, Bean 4323 (BRI, DNA, MEL, NSW, PERTH); 22 km NE of Torrens Creek, Apr 1993, Thompson HUG386 et al. (BRI); 17.5 km NE of Torrens Creek, Apr 1993, Thompson HUG400 et al. (BRI).

Distribution and habitat: *B. squarrulosa* is known from a restricted area west of Pentland on and near the Great Dividing Range (**Map 3**). It inhabits heathland on sandstone outcrops, adjacent to stunted specimens of *Eucalyptus trachyphloia*, *E. leichhardtii* F.M.Bailey or *Acacia shirleyi* Maiden.

Phenology: Flowers have been collected in February, April and November; fruits have been collected in April.

Affinities: *B. squarrulosa* is similar to *B. jucunda*, but is readily distinguished by its sessile flowers (pedicellate in *B. jucunda*), acuminate outer sepals (obtuse in *B. jucunda*) and its 8–10 stamens (3–5 for *B. jucunda*). Its small imbricate leaves are reminiscent of the genus *Micromyrtus*, as was pointed out by Domin (1928).

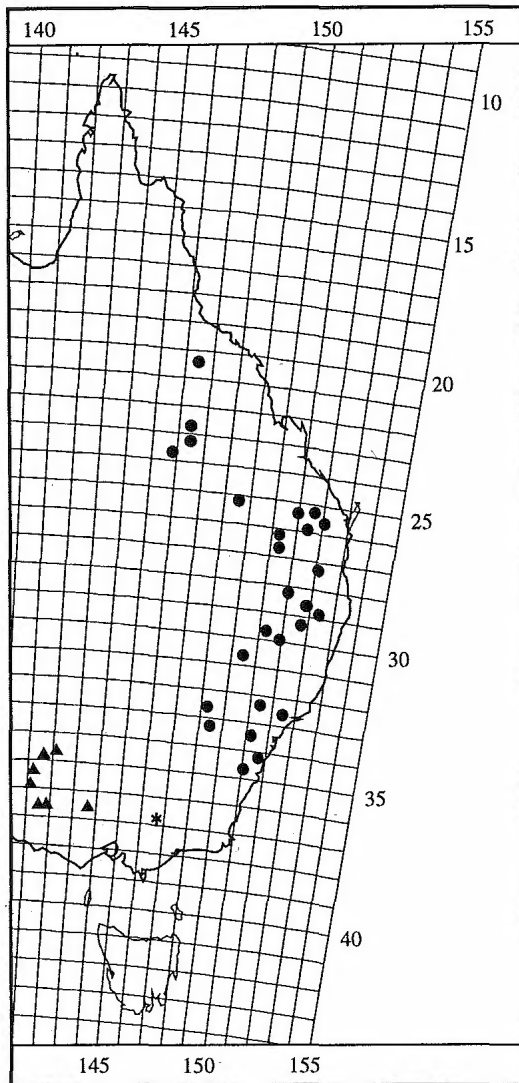
Conservation status: The risk category for *Babingtonia squarrulosa* according to the criteria of Chalson & Keith (1995) is 'vulnerable' (criteria B1, B2 and D1). The species is currently known from six populations within an area of about 40 × 20 km.

The recommended conservation status for this species as defined by the Queensland *Nature Conservation Act 1992* is 'vulnerable'.

15. Babingtonia granitica A.R.Bean **sp. nov.**

B. odontocalyci affinis a qua foliis latioribus, petalis minoribus, ovulis paucioribus in quoque loculo et staminibus paucioribus differt. **Typus:** Queensland. DARLING DOWNS DISTRICT: The Pyramid, Girraween National Park, 2 January 1994, A.R.Bean 7263 (holo: BRI; iso: CANB, K, MEL).

Baekkea sp. 3, Stanley & Ross, *Flora S.E. Queensl.* 2: 127 (1986).



Map 2. Distribution of *Babingtonia* spp.
● *B. densifolia*, ▲ *B. behrii*, * *B. crenulata*.

Baeckea sp. (Wyberba F.D. Hockings AQ 8305) in Henderson (1994).

Shrub to 2 m high. Bark grey, longitudinally fissured. Stem flanges white to grey, flat, not winged, not warty, entire. Leaves oblanceolate, 2.5–3.3 mm long, 0.7–1.4 mm wide, straight, plano-convex, acute, not keeled, entire or minutely denticulate; oil glands conspicuous on lower surface; no veins visible; petiole 0.5–0.7 mm long. Inflorescence axillary, 1-flowered; peduncle 0.5–1.1 mm long; pedicels 0.6–1.5 mm long; bracteoles 2, narrowly-

conical, cymbiform, c. 1.6 × 0.5 mm, persistent, apex acute. Hypanthium obconical, 1.5–1.9 mm long, papillose, fused to the ovary except at top. Sepals compound; inner lobe obtuse, 0.4–0.5 × 0.8–0.9 mm, thin, margins fimbriate; outer lobe triangular, 1.0–1.5 mm long, thick, apex acuminate. Corolla white, up to 6 mm across; petals orbicular, 1.8–2.2 mm across, margins fimbriate; oil glands present. Stamens 5–9, often 7, some opposite sepals and others placed between sepals and petals, stamens opposite sepals shorter than remainder; filaments terete, 0.3–0.5 mm long, geniculate, with a brown connective gland fused to the upper part of filament at bend; anthers adnate, c. 0.2 mm long, dehiscing by elliptical pores; anther loculi fused. Style c. 0.6 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc concave; ovules 8–9 per loculus, arranged in two longitudinal rows on placenta. Fruits and seeds not seen. Fig. 2 E–G.

Specimens examined: Queensland, DARLING DOWNS DISTRICT: Wyberba, around the top of the first Pyramid, Dec 1972, *Hockings* s.n. (BRI); near Doctors Creek, 4 km NE of Lyra, Jan 1995, *Bean* 8216 (BRI, NSW); Portion 130, 7.5 km NW of Ballandean, Nov 1994, *Halford* Q2339 (BRI, MEL).

Distribution and habitat: *B. granitica* is endemic to the 'Granite Belt' in the extreme south of Queensland near Stanthorpe (Map 1) where it is known from three small populations. It grows in shallow peaty soil associated with crevices in extensive granite outcrops.

Phenology: The species flowers between November and January.

Affinities: *B. granitica* is most closely related to *B. odontocalyx* as both species have papillose hypanthia with acuminate outer lobes, and relatively narrow leaves. *B. granitica* differs from *B. odontocalyx* by its 5–9 stamens (11–13 in *B. odontocalyx*), broader leaves, smaller petals and 8–9 ovules per loculus (12–14 in *B. odontocalyx*). *B. granitica* is also similar in appearance to *B. densifolia*, but is readily distinguished by its muricate hypanthium with acuminate outer lobes.

Conservation status: The risk category for *Babingtonia granitica* according to the criteria of Chalson & Keith (1995) is

'critical' (criterion A). The species is known from three populations; nine plants have been observed at the type locality, and one plant at the Doctor's Creek locality. The Ballandean population is on leasehold land and has fewer than 20 plants (D. Halford pers. comm.).

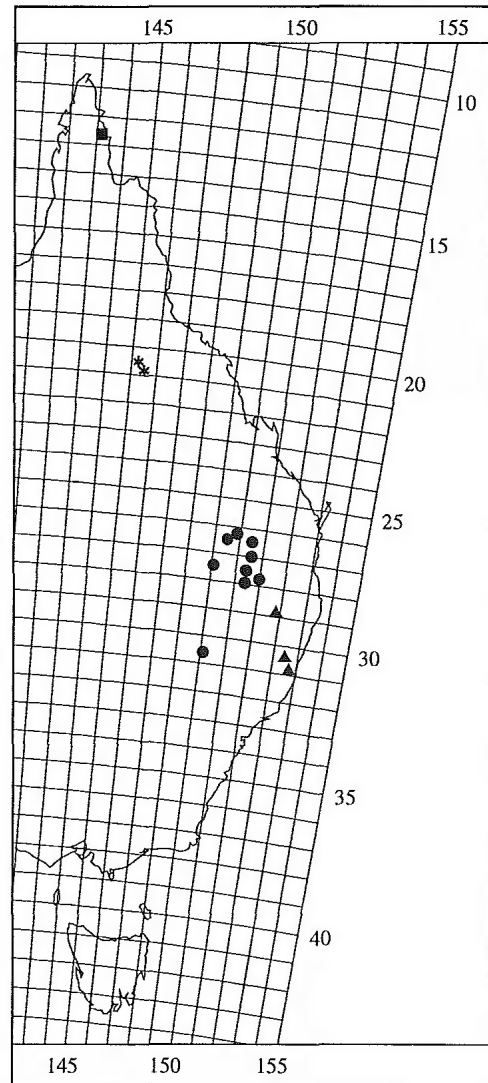
The recommended conservation status for this species as defined by the Queensland *Nature Conservation Act 1992* is 'endangered'.

Etymology: The epithet *granitica* refers to the granite substrate upon which this species is found.

16. *Babingtonia odontocalyx* A.R.Bean sp. nov. *B. graniticae* affinis a qua foliis angustioribus, petalis majoribus, ovulis numerosioribus et staminibus 11–13 differt. **Typus:** New South Wales. NORTH WESTERN SLOPES: 24 km NNW of Emmaville, along road to 'The Gulf', 1 January 1994, *A.R.Bean* 7261 (holo: BRI; iso: MEL, NSW).

Baeckea sp. A, *Flora of New South Wales* 2: 184 (1991).

Shrub to 2 m high. Bark grey, fibrous, persistent. Stem flanges grey to white, flat, not winged, not warty, entire. Leaves linear, 3.1–4.5 mm long, 0.5–0.8 mm wide, straight, plano-convex to concavo-convex, obtuse, not keeled, entire; oil glands conspicuous on lower surface; no veins visible; petiole c. 0.5 mm long. Inflorescence axillary, 1-flowered; peduncle 0.6–1.0 mm long; pedicels 0.5–2.0 mm long; bracteoles 2, linear, c. 2.5 × 0.4 mm, persistent, acute. Hypanthium obconical to hemispherical, 1.5–1.8 mm long, papillose, fused to the ovary except at top. Sepals compound; inner lobe semiorbicular, c. 0.5 × 0.7 mm, thin, margins fimbriate; outer lobes triangular, 1.3–1.6 mm long, thick, acuminate. Corolla white, up to 8 mm across; petals orbicular, 2.6–3.1 mm across, margins fimbriate, oil glands present. Stamens 11–13, with one short stamen opposite each petal, others longer; filaments terete, c. 0.25 mm or 0.5 mm long, geniculate, with brown connective gland fused to upper part of filament at bend; anthers adnate, c. 0.2 mm long, dehiscing by elliptical pores; anther loculi fused. Style c. 0.4 mm long, set into a pit; stigma broadly capitate. Ovary 3-locular; floral disc flat; ovules 12–14



Map 3. Distribution of *Babingtonia* spp. ■ *B. tozerensis*, ▲ *B. silvestris*, ● *B. jucunda*, * *B. squarrulosa*.

per loculus, arranged in two longitudinal rows on placenta. Fruit hemispherical, c. 1.7 × 3.2 mm; valves triangular, woody, slightly exerted. Seeds D-shaped, with flat sides and rounded backs, c. 0.8 mm long, surface reticulate, pale brown; hilum terminal. **Fig. 2 H–L.**

Specimens examined: New South Wales. NORTHERN TABLELANDS: Dingo Creek, 14 km NW of Torrington, Jan 1968, *Wissmann* s.n. (BRI, NE); 3.9 km E of the Torrington-Silent Grove road, turnoff 17.7 km N of Torrington, Oct 1990, *Coveny* 14685 et al. (BRI, NSW, PERTH). NORTH WESTERN SLOPES: 2.7 km E along the Flagstone Creek track from the Gulf Road, c. 18 km (direct) just W of N of Emmaville, Oct 1990, *Coveny* 14626 et al. (BRI, CBG, NE,

NSW); 25 km NNW of Emmaville, towards 'The Gulf', Dec 1990, *Bean* 2781 (BRI, NSW); 4.8 km along Flagstone Creek road, off Emmaville to The Gulf road, Apr 1995, *Forster* PIF16413 (BRI, K, MEL, NSW).

Distribution and habitat: *B. odontocalyx* is confined to a relatively small area of granite hills around Torrington and north of Emmaville in far northern New South Wales (**Map 4**). It occurs in pockets of soil on bare granite outcrops in association with *Leptospermum novae-angliae* Joy Thomps., *Eucalyptus prava* and *Callitris* sp.

Phenology: Flowers are borne in December and January, and fruits shortly afterwards.

Affinities: *B. odontocalyx* is most closely related to *B. granitica*. See affinities section under that species.

Conservation status: The risk category for *Babingtonia odontocalyx*, according to the criteria of Chalson & Keith (1995), is 'vulnerable' (criteria B1 and D1). The species is known from several scattered populations over a distance of about 35 km.

Etymology: The epithet is derived from the Greek *odontos*-tooth and *calyx*-calyx, in reference to the prominently acuminate sepals of this species.

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References

- BEAN, A.R. (1995). Reinstatement and Revision of *Triplarina* Raf. (Myrtaceae). *Austrobaileya* 4: 353–67.
- BENTHAM, G. (1865). In Bentham & Hooker, *Genera Plantarum* p. 702. London: Lovell Reeve & Co.
- (1867). *Baeckea*. In *Flora Australiensis* 3: 71–89. Lovell Reeve & Co: London.
- BLAKE, S.T. (1958). New and Critical Genera and Species of Myrtaceae subfamily Leptospermoideae from eastern Australia. *Proceedings of the Royal Society of Queensland*. 69: 75–88.
- CHALSON, J.M. & KEITH, D.A. (1995). *A Risk Assessment scheme for Vascular Plants: Pilot Application to the Flora of New South Wales*. Hurstville: National Parks and Wildlife Service.
- DAWSON, J.W. (1992). *Flora de la Nouvelle-Caledonie et Dependances, 18. Myrtaceae-Leptospermoideae*. Museum National d'Histoire Naturelle: Paris.
- DOMIN, K. (1928). Beiträge zur Flora und Pflanzengeographie Australiens. *Bibliotheca Botanica* 89. E. Schweizerbart: Stuttgart.
- HANDO, V. (1988). Plants of Western Darling Downs, Barakula-Gurulmundi and South-west Burnett. In R. Hando (ed.), *Going Bush with Chinchilla Nats* pp. 96–171. Chinchilla: Chinchilla Field Naturalists Club Inc.
- HENDERSON, R.J.F. (ed.) (1994). *Queensland Vascular Plants: Names and Distribution*. Brisbane: Queensland Department of Environment & Heritage.
- JOHNSON, L.A.S. & BRIGGS, B.G. (1985). Myrtales and Myrtaceae—A Phylogenetic Analysis. *Annals of the Missouri Botanical Garden* 71: 700–56.
- KRAEHNENBUEHL, D.N. (1981). Dr H.H. Behr's two visits to South Australia in 1844–45 and 1848–49. *Journal of the Adelaide Botanic Gardens* 3: 101–23.
- MERRILL, E.D. (1928). A Collection of Plants from Sarawak. *Sarawak Museum Journal* 3: 513–46.
- MUELLER, F. (1864). *Baeckea*. In *Fragmenta Phytographiae Australiae* 4: 68–74. Government Printer: Melbourne.
- SCHAUER, J.C. (1843). Genera Myrtacearum Nova vel Denuo recognita. *Linnaea* 17: 235–44.
- TRUDGEN, M.E. (1987). *Ochrosperma*, a new genus of Myrtaceae (Leptospermeae, Baeckeeinae) from New South Wales and Queensland. *Nuytsia* 6: 9–17.